KNOWLEDGE

NO. 186 VOLUME 16 The colour magazine which grows into an encyclopaedia EVERY MONDAY 2/-

Seymour 3/-

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The next *two* editions of *Knowledge News* will be appearing in:

Black Knowledge Nos 191 and 192
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U UNIFORMS

A SUIT of distinctive clothing, or uniform, is worn today by a great variety of people – by men, women, and children. They may be members of the armed forces or the police, postmen, customs officers, firemen, nurses, bus drivers, Girl Guides, Scouts, or schoolchildren; you can probably think of many more.

The main purpose of any uniform is to distinguish its wearer from other people and make him or her immediately recognisable as a member of a particular organisation. Some uniforms follow current fashions or are specially designed to suit a particular job; others may be impractical for everyday use but are retained out of pride in old traditions. In the armed forces both types are worn: the first for normal duties, the second as full or ceremonial dress worn on special occasions. In fact most uniforms have their origins in military history, for uniforms came into being simply as a means of distinguishing friend from foe.

The Life Guards, part of the Household Cavalry

From coloured sashes to red coats

In classical times, as methods of warfare became more organised, the troops were equipped with identical weapons and protective clothing (armour); both officers and men wore coloured sashes or cloaks, or sometimes badges, to distinguish one legion or band of soldiers from another. A complete uniform was not necessary, for each army wore the style of dress customary in its own country or state which was in itself easily recognisable.

But as communications between European countries improved over the centuries one country's fashions were copied by another, and so princes of the 13th century dressed their private armies in their own 'coat of arms'; this meant not only the weapons carried by the soldiers but also the tunics covered in the heraldic devices of the prince they served. In the troubled years of the 14th century European cities also found it necessary to keep troops at the ready. The growing cloth and dyeing industries provided cheap coloured material for uniforms, and each city or townsmen's guild had a livery in its own colour and in the style then fashionable. Red became particularly popular, especially in the 16th century when Spanish fashions influenced the whole of Europe (see **Dress**). But liveries and private armies were gradually discouraged and army officers came to wear

Behind the officers are Commandos of the Royal Artillery, camouflaged and ready for action

A Scots Guard in the traditional red coat and bearskin

Previous page: one of Britain's most colourful uniforms. The Chief Yeoman Warder at the Tower of London in 16th-century clothes.

In Neolithic times conveniently-shaped parts of trees were used as hoes and as primitive ploughs

FROM THE WOODEN PLOUGH TO CHEMICAL FERTILISERS

THE first men, like wild beasts, were hunters and gatherers. Their food consisted of the animals which they could catch and kill and the edible fruits, leaves, and roots which they could find around them. In fact, they spent almost the whole of their lives in search of food. When they had exhausted the resources of the area in which they lived they moved on to another area. Only after hundreds of thousands of years did men learn to herd rather than to hunt and to cultivate rather than to forage.

The first farmers probably lived about 5000 B C in the warm lands at the eastern end of the Mediterranean. In those days the climate of that region was far wetter than it is today and was, therefore, ideal for agriculture. These early farmers kept sheep, goats, oxen, asses, pigs, and camels. Not only did these prove a more reliable source of meat than wild animals but they could also be used to provide milk and to carry burdens.

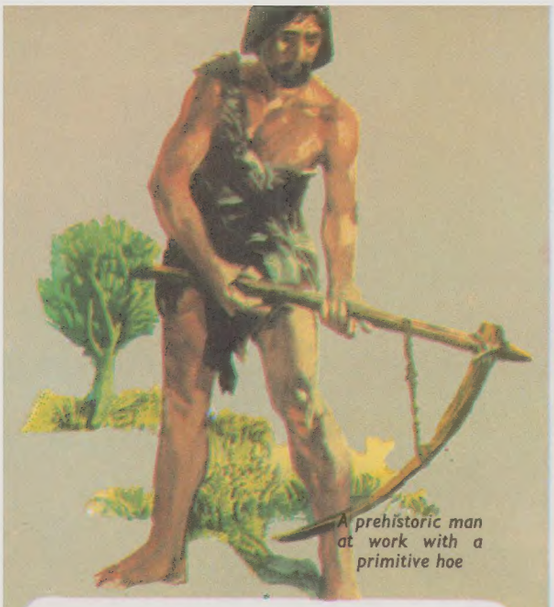
At about the same time men learned the skills of cultivation. They began to save some of the edible seeds which they collected each summer for planting in prepared ground the following spring. When the crops ripened they ate only part of the grain; the remainder they saved and planted as seed the following year.

The beginnings of animal husbandry and of crop growing went hand in hand. Animals provided manure for fertilising the fields, and after the crops were harvested the animals were allowed to feed on the stubble. Furthermore, the patient oxen, which man had learned to keep, could be harnessed to ploughs to provide the extra power needed for cultivating the increasing areas of arable land.

These advances in agriculture had two very important effects. They released men from their interminable search for food and made it possible for them to live in permanent settlements. Later, with improvements in farming efficiency, one man was able to grow more than enough food for himself and his family and so he could barter some of the surplus for other goods which a neighbour could supply.

It was in some way such as this that specialised occupations developed within these early communities. The trend continued. Increasing numbers of specialists became ever more skilled in their chosen occupations, and gradually the techniques of civilisation arose which made possible the great cities and cultures of the Ancient World.

A Neolithic farmer scatters seed on the earth



A prehistoric man at work with a primitive hoe

The earliest agricultural implements were the *digging stick* and the *hoe*. The digging stick was merely a stake pointed at its lower end and hardened by fire. It was used in much the same way as a spade, but was far less efficient. The hoe consisted of a wooden shaft to which a blade of wood or bone was attached. It was probably reasonably satisfactory for cleaning the ground of weeds, but as it disturbed only the surface layer of the soil it was a poor tillage implement.

Ploughing with oxen in the Bronze Age

The first ploughs were made about 3000 B C. They are known as spade-ploughs, for it seems that they were developed from a digging stick angled in such a way that it could be pulled through the earth. Similar primitive ploughs were developed from the hoe. These early ploughs, although not very efficient, made it possible for one man to grow more corn than he needed for himself and consequently to exchange some of his produce for services, goods, livestock, or even for a wife.

Diverting water from a stream to irrigate fields

In Egypt the annual flooding of the Nile provided a natural source of irrigation and fertilisation of the land on either bank. This was extended to more land by leading flood water along channels into large *basins* or into fields surrounded by earth banks. When the water level fell and the fields dried out the seeds were planted, sufficient water remaining in the soil to bring the crops to maturity. In some regions quite complicated systems of parallel irrigation channels were dug.

Ploughing with traction engines

The first traction engines were built about 1850. They were so heavy that they could not be used to cross the field in front of the plough, so, instead, they stood at one side and wire ropes were attached to them which pulled the plough across the field. Ploughs with four shares – two for ploughing in each direction – were used with them. Later models had as many as six shares ploughing each way. With these larger ploughs it was often necessary to have two engines, one on each side of the field.

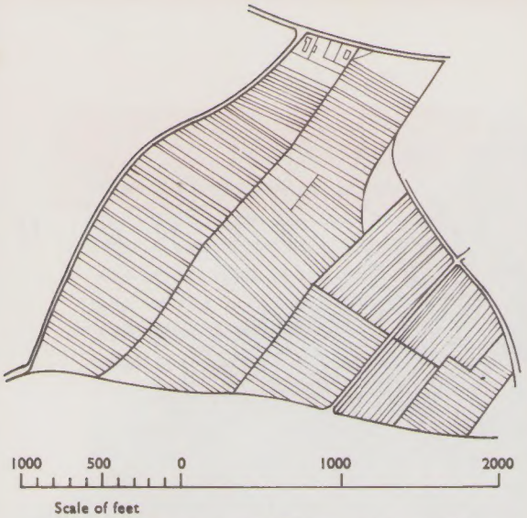
The first chemical fertilisers were spread on the fields by hand

The idea that all plants need certain chemicals from the soil and that land becomes infertile when these chemicals are used up was first proposed by the German chemist Baron Justus von Liebig (1803–1873). In a series of experiments he proved that by adding certain chemicals to infertile land useful crops could be grown. This paved the way for the use of chemical fertilisers. In England his work was extended by Sir John Lawes, who developed the fertilisers known as *superphosphates*.

Grafting a scion of a new variety of fruit tree on to a rootstock

The important improvements in methods of cultivation which took place in the 18th and 19th centuries were paralleled by equally important improvements in the quality of the crops grown. Men began to understand how to obtain the best seed, and how to cross existing strains in order to produce valuable new strains.

It was during this time, too, that many of the very famous fruit trees that are familiar to us today were first developed and propagated.



An English village in the Middle Ages with large fields each divided into strips

The *colter plough* which the Anglo-Saxons brought to Britain turned the soil over in much the same way as a modern plough. But, since eight oxen were required to pull it, it was difficult to turn and, consequently, was only really satisfactory for cutting long furrows. This led to the development of the long, narrow strips of the English mediaeval *open-field system*. Under this system every family in the community farmed a number of strips in each of several great common fields.

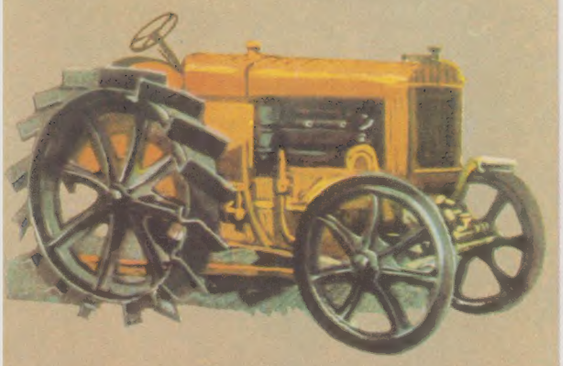
Monks tending their fields during the Middle Ages

During the Middle Ages the monasteries were largely self-sufficient. The monks fed not only themselves but also any travellers who came to their doors. Consequently, they were deeply involved in the development of agriculture.

One interesting feature of monastic agriculture was the herb garden attached to every monastery. In this garden the monks grew many kinds of herb from which they made medicines for the sick people who came to them for treatment.

Lord Townshend, who systematised crop rotation

In England the open-field system was largely replaced during the 17th century by the *enclosures* of rich landowners. This control of large estates by individual men led to experimentation and, in the 18th century, to the invention of the *seed drill* by Jethro Tull. The system of *crop rotation* – turnips, barley, clover, wheat – was devised by Lord Townshend (Turnip Townshend), and *selective breeding* of sheep was begun by Robert Bakewell, a Leicestershire gentleman farmer (see page 1903).



A 1920 farm tractor

The first tractors driven by internal combustion engines were built during the last decade of the 19th century. In the 20th century they became increasingly widely used, particularly during the periods of intense cultivation demanded by the two world wars. The earliest tractors were merely replacements for horses, but later more powerful models with belt drives and power take-off shafts were built. These supply driving force for other large and efficient farm machines.

A modern self-propelled combine harvester at work

The steady increase in labour costs during the 20th century has meant that farming can be carried on profitably only if the man-hours for each task are reduced to a minimum. In many countries this has been achieved by the extensive use of agricultural machinery. There are now machines which will sow seeds, plant out small plants, simultaneously reap and thresh corn crops, lift root crops, milk cows, and perform many other farming tasks which were, at one time, done by hand.

A scientist using a Geiger counter to measure the radioactivity present in the soil

The modern farmer has the full backing and support of the techniques developed by the agricultural scientist in his laboratory. For example, the rate at which different crops use fertilisers has been measured by adding traces of radioactive elements to fertilisers used on experimental plots. In this way scientists have been able to determine the amount of fertiliser which each crop needs to grow in a particular type of soil, and also to assess the best way of applying it.

CAMBODIA AND LAOS

CAMBODIA and Laos are two small, neighbouring countries in south-east Asia which lie under the shadow of Communist China. Together with North and South Vietnam, both were once part of the former French colony of Indo-China (see page 1217). But they have little else in common, for while Cambodia is formed mainly of fertile lowland, Laos consists almost entirely of rugged uplands with few tracts of good farmland. Cambodia has considerable untapped resources, not only of land but also of minerals, but Laos has only a very limited potential.

CAMBODIA: THE LAND AND CLIMATE

Nearly three-quarters of Cambodia consists of a broad lowland, centred on the lake of Tonle Sap and the lower Mekong valley. Most of it lies only a few feet above sea-level, and although large areas are cultivated others are still under swamp forest. Sinuous banks of mud, built up naturally by the rivers, separate them from the sections of plain called *bengs* that are flooded during the wet season. In the south the lowland merges into the Mekong delta of South Vietnam, but on its other sides it is bounded by thickly forested mountains. To the north-east the Moi plateau grades into the uplands of Laos at about 4,000 feet; the Dangrek scarp in the north rises sharply some 2,000 feet above the plain; and to the west the Cardamon and Elephant mountains, which reach heights of over 5,000 feet, separate the plains from the sea.

Cambodia, like Laos, has a tropical monsoon climate. In summer the south-west monsoon brings hot, sultry weather with frequent thunderstorms, and sometimes there may be continuous rain for several days. In 'winter' winds blow off-shore and the weather is mostly dry and hot.

A Cambodian peasant preparing his rice field with a crude, ox-drawn plough

CAMBODIA: STATISTICS

Area: c. 69,000 sq. mi.
Population: 5,570,000
Density of population: c. 80 per sq. mi.
Towns: Phnom Penh (capital) 550,000
Battambang 25,000
Kompong Cham 20,000
Imports: iron and steel, machinery, textiles, petroleum, medicines.
Exports: rubber, rice, maize, some animals, pepper, and lumber.

LAOS: STATISTICS

Area: c. 91,400 sq. mi.
Population: c. 3,000,000
Density of population: c. 33 per sq. mi.
Capitals:
Luang Prabang 20,000
Vientiane 180,000
Chief products: rice, maize, tobacco, tin.
Imports: textiles, vehicles and parts, metal goods, food products.
Exports: wood, wood products, tin concentrates, tin, coffee.

THE TONLE SAP

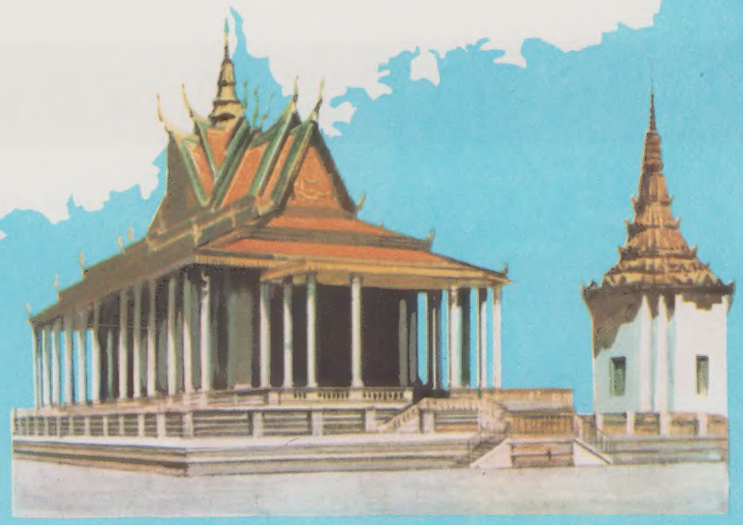
The Tonle Sap or Great Lake is Cambodia's most remarkable physical feature. In the dry season it has an area of about 1,000 square miles and is drained through the Tonle Sap river into the river Mekong. During the wet season floods raise the level of the Mekong so much that the Tonle Sap river is unable to flow into it. Instead the direction of drainage is reversed, and waters from the Mekong flow into the lake, increasing its area sometimes up to 4,000 square miles. The flooding brings an annual deposit of fertile silt and helps to maintain the supply of fish.

FARMING, FISHING, AND FORESTRY

Most of Cambodia's people obtain their living by farming. The chief agricultural areas are the Phnom Penh region, the Kompong Cham district, and around the Tonle Sap in the area sometimes called the 'rice bowl'. Rice is the main crop and provides the basic food for most of the population. About 1½ million tons are produced each year, generally from wet paddy fields in which the water level is raised as the crop grows. Production could be considerably increased if irrigation were used to enable a second crop to be cultivated in the dry season. Rubber (grown almost entirely for export) and maize are the next most important crops, while peanuts, beans, vegetables, fruit, tea, pepper, and sugar cane are also cultivated.

Only about 10 per cent (about 5 million acres) of Cambodia's vast, fertile lowlands is under the plough; it is estimated that some 20 million acres could be cultivated. These lands naturally attract the attention of neighbouring China with its critical shortage of good farmland.

Fishing is the chief means of livelihood after rice growing, and most farmers are also part-time fishermen. The Tonle Sap provides the richest source, but the rivers are also valuable, and there is some trawling in the Gulf of Siam. In spite of widespread and often dense tree cover, forestry is little developed. Some timber is exported, however, and the tree trunks are transported through Cambodia by elephant and sampan.



The silver-floored pagoda of Vat-Prah-Keo, Phnom Penh, Cambodia

INDUSTRY

There is little industry in Cambodia except for food processing (especially rice milling) and handicrafts such as the weaving of the *sampot*, the sarong-like national dress. As a result of foreign aid a few modern installations have been built in Phnom Penh – for example, a car assembly plant and cigarette factories.

LAOS: THE LAND

Laos, in contrast to Cambodia, is mainly a highland country; only a tiny proportion lies below 500 feet, while about half is at a height of over 2,000 feet. In the north the Laos plateau forms a rugged extension of the Yunnan plateau of China. Much of it is formed of resistant limestones which support an open vegetation, but other parts are covered with dense forest. The plateau is broken up by many deep gorges.

Extending south-eastwards from this upland block is the Annamite Chain, a high, forest-covered ridge, attaining heights of over 6,000 feet in places, scored by steep-sided valleys. It forms an effective barrier to east-west communications.

THE MEKONG VALLEY

The only important area of lowland is the valley of the Mekong, which forms most of the country's western frontier. This great river, over 2,500 miles long, rises in Tibet and cuts a deep gorge through the high plateaux of south-west China before it reaches Laos. It does impose some small degree of unity on this rugged country, but it has never become a major transport artery because of the interruptions in its course and the irregularity of its flow. Between Luang Prabang and Khong, for example, there are a number of rapids and falls which prevent continuous navigation. The falls at Khône (on the Laos-Cambodia border) are the second largest in the world measured by volume of water. Floods are caused by the heavy rains of the summer monsoon.

A typical village in the mountains of Laos. The wood and thatched huts are strung out along the muddy track which serves as a high street. The primitive farmers who live there are very poor

ECONOMY

In spite of the difficulties caused by the mountainous terrain, most of the people of Laos are farmers. In the Mekong and some of its wider tributary valleys rice, grown in wet paddy fields, is the staple food crop. On the plateau, however, poor hill tribes practise a primitive type of shifting agriculture. They clear a patch of forest where they grow crops of rice, maize, sugar cane, and roots for two or perhaps three years before moving on to another district.

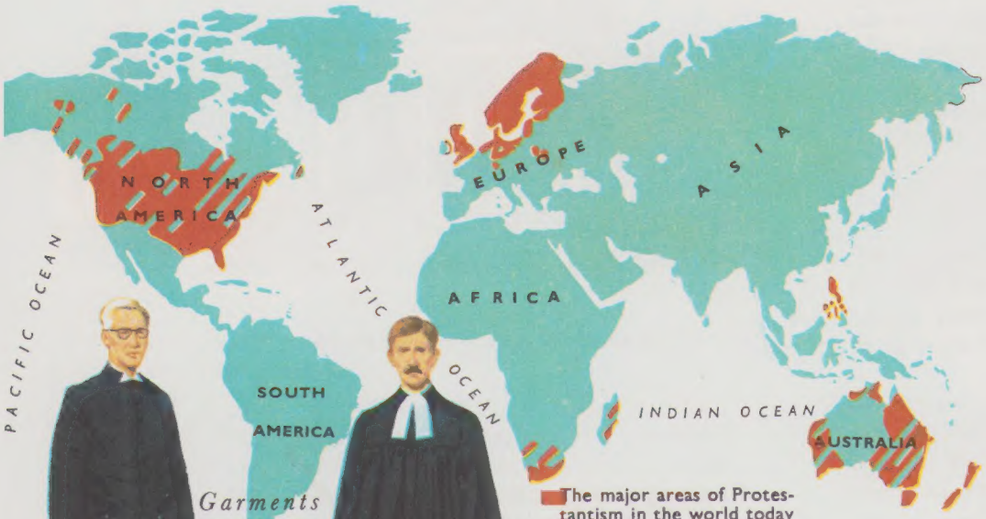
Laos is very backward and received few of the benefits of modern civilisation until the last decade. It has no railways, few roads, no major industry, and little hydro-electricity. It even has to import rice to supplement its own production.

POLITICAL INSTABILITY

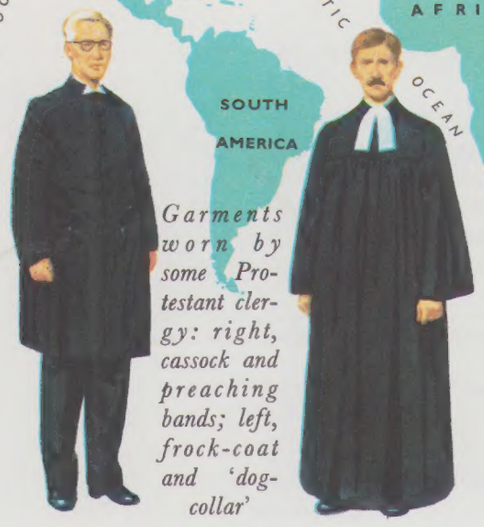
Laos is politically as well as economically unstable, as is shown by its history (see page 1217). It is also of considerable strategic significance since it provides a very suitable route for the expansion of Communism, under the leadership of China, into south-east Asia. The tangled hills of the north are ideal for penetration by guerrilla forces. To counter this the United States has given much aid, improving the transport system and paying for most of the country's imports.

Laos has two capital cities: Luang Prabang, the home of the royal family; and Vientiane, which is the centre of administration.

PROTESTANTISM



The major areas of Protestantism in the world today



Garments worn by some Protestant clergy: right, cassock and preaching bands; left, frock-coat and 'dog-collar'

The interior of a Protestant church

ONE of the great problems facing the Christian world is its disunity. There is no one Christian denomination; Christians can be Roman Catholic, Orthodox, Nonconformist, and so on. Among the divisions of Christianity is Protestantism.

Protestantism is not a religion in the strict sense, for there is no 'body of rules' to distinguish it from other Christian denominations. Instead there are several Protestant religions – for example, Presbyterianism and Anglicanism – whose members may disagree over such basic questions as the necessity for ordained priests. And even Anglican priests may disagree over doctrinal matters and, as was seen by the publication in 1963 of the Bishop of Woolwich's book, *Honest to God*, over their attitude to God.

What then is Protestantism? The word itself means two things, both important in Protestant thinking. First, it means the *protesting* against a particular idea. It first came into use in this way in 1529, when a group of Germanic leaders 'protested' against the decree of the Imperial Diet of Spiers, which had opposed religious changes and ordered the Catholic Mass to be tolerated in all parts of the Empire. The second meaning is the *protestation* of a doctrine or article of faith. It is the Protestant's duty to 'protest', or 'bear witness to', his faith.

The Protestant faith

It is impossible to understand Protestantism outside its historical setting; for a Protestant is a follower of one of the churches which base their belief on the principles of the Reformation (see page 1062). The most important Protestant beliefs and attitudes stem from the great movement which began when Martin Luther (see page 1248) nailed his 95 theses to the door of Wittenberg Cathedral in 1517. Luther taught that in matters of theology all men were, in a sense, equal. Everyone on this earth was responsible for saving his own soul and had the Word of God recorded in the Bible to help him. It was the Christian's duty to find the Truth, and the means of Salvation, in the Bible. Luther found that man was justified 'by faith alone'.

We can see here, in the Lutheran Reformation, the fundamentals of Protestantism. First, it emphasises the personal relationship between man and God. Then comes the appeal to the Bible for guidance towards Salvation. It is because of this zeal and fervour in preaching directly the Word of God (rather than learned interpretations and formalised theological doctrines) that words like *Evangelicalism* and *Confessionalism* were applied so easily to Protestantism at the time of the Reformation, and are still to this day.

At the time of the Reformation early 'Protestants' like Luther and Cranmer (see page 2014) did not deliberately split from Rome. They still regarded themselves as members of the one true Church which had existed since the time of Christ. But after the Council of Trent had defined Roman Catholic doctrine it became increasingly apparent that there were, in fact, a number of different Christian religions in Europe. By the mid-17th century the word 'Protestant' was in fairly general use to distinguish 'Reformation religions' like Anglicanism, Lutheranism, and Calvinism from the Roman Catholic Church.

Different doctrines

It has been scornfully said that 'every Protestant, with his gospel in his hand, is his own Pope'. It is indeed obvious that once the principle of individual interpretation of the Bible is accepted there is room for a wide divergence of opinion over certain points of doctrine. Yet it is part of the Protestant tradition that man is imperfect and therefore incapable of fully understanding the Truth in this world.

We have spoken so far as if the Protestant churches date from the Reformation, and, of course, from one point of view they do. But some Protestants would maintain that Protestantism has always been a feature of the Church – in the 1st and 12th as well as 16th and 20th centuries. Those who 'bore witness' to Christ's suffering and believed that through His death mankind was redeemed for eternal life were 'Protestant'. One Protestant authority wrote that Christ Himself 'taught a radical Protestantism'.

ESTIMATED MEMBERSHIP OF THE LARGER PROTESTANT COMMUNITIES

	Great Britain	*World*
Lutheran	30,000	72,588,559
Baptist	696,000	50/60,000,000
Church of Scotland (Presbyterian)	1,665,000	45/50,000,000
Methodist	2,250,000	41,500,000
Anglican	27,697,000	40,000,000
Congregationalist	495,580	6,000,000

ESTIMATED MEMBERSHIP OF PROTESTANT COMMUNIONS

Africa	18,956,398
America	81,655,282
Asia	28,370,418
Europe	126,331,432
Oceania	8,428,253
	263,741,783

STORKS AND HERONS

Common heron (Ardea cinerea)

A common or grey heron on its nest with three partly fledged young. Herons nest in high trees in colonies called heronries. They feed on fish, frogs, and small mammals

ONE of the 'animal gods' worshipped by the Ancient Egyptians was Thoth, the god of art and science, who was supposed to have invented writing. Thoth is portrayed in Egyptian carvings as a human figure with the head of an ibis, a bird which the Ancient Egyptians regarded as sacred. The ibis is a member of the Order of birds called **Ciconiiformes,** which also includes the more familiar storks and herons. The birds of this Order have always been held in high regard by mankind because of their large size and the power and beauty of their flight.

Perhaps the most famous member of the Order is the white stork, which breeds in Europe and spends the winter in Africa. Everyone has seen pictures of this large bird nesting on the roofs of houses, churches, and other buildings. In northern European countries such as Holland and Germany the white stork is regarded with affection as a token of good luck, and the people actively encourage it to build its nest in their towns and villages.

Eggs of the spoonbill (behind) and of the little bittern

Saddle-bill stork (Ephippiorhynchus senegalensis)

THE CICONIIFORMES

Most of the members of the Order are large birds with long legs and necks and great, powerful beaks. They are predatory, feeding on fish, frogs, and other small animals, and sometimes on large insects. Some of them hunt their prey in shallow water, where they wade with their long legs. Many of them breed in colonies, just as rooks do; a breeding colony of herons is called a heronry. Most of the herons and the true storks nest in high trees, but the white stork, as we have seen, nearly always nests on buildings. The bitterns, the spoonbills, and some other ciconiiform birds nest among reeds in swamps and marshes.

The Ciconiiformes can be classified in two Suborders – the Ciconiae (storks, ibises, and spoonbills) and the Ardeae (herons, egrets, and bitterns). An easy way of distinguishing them is by their flight – the Ciconiae fly with their heads and necks stretched out in front, the Ardeae with their heads and necks held in an S-curve. Flamingos were formerly included in the Ciconiiformes, but are now believed to be related to the ducks and geese.

TYPICAL CICONIIFORM BIRDS

The stork (*Ciconia ciconia*) could be called the basic member of the Order. Ibises are small storks with down-curved beaks; there are about 30 species of them, mostly black and white in colour. Spoonbills are related to ibises, but have straight beaks expanded at the tip. The egrets are really herons with white plumage.

White stork (Ciconia ciconia) *Little egret* (Egretta garzetta) *Glossy ibis* (Plegadis falcinellus) *Spoonbill* (Platalea leucorodia)

THEY CAN BE TAMED

Many ciconiiform birds can be tamed if they are caught young. The white stork leads a semi-domesticated life while it is nesting, and the adjutant stork of India plays a useful role in villages by eating rubbish that would otherwise go bad.

On these two pages is a selection of birds from the Order Ciconiiformes.

Great white heron. This is a very beautiful bird whose pure white plumage contrasts with its black bill and feet. It is found in eastern Europe, Africa, and Asia, and also in North and South America. Like most herons, it breeds in colonies, building its nest in high trees. In the early years of this century great white herons were shot in thousands at their breeding places for the sake of the long white feathers on their backs, which were used to ornament women's hats. Fortunately, these feathers, called 'aigrettes', have now gone out of fashion.

Bittern. The bittern is quite unlike the other kinds of heron, although it is related to them. It lives in reedy marshes, where it can hide itself by means of its remarkable system of camouflage. When alarmed, a bittern stands in the reeds with its head and beak pointing straight upwards. This posture and its streaked brown plumage conceal it perfectly among the upright stems of the reeds. The male bittern makes a deep booming noise, usually at night. Bitterns' nests are built on the ground in thick reed beds, singly, not in colonies. In Britain they are found mainly in the Norfolk Broads.

Bittern (Botaurus stellaris)

Great white heron (Egretta alba)

Adjutant stork (Leptoptilos dubius)

Adjutant stork. The adjutant stork of India is a large, untidy-looking bird with a very powerful beak and a pouch of skin under its throat. It lives mainly by scavenging and often joins vultures in devouring a dead animal. It is called 'the adjutant' because of its very upright stance – like that of an army officer standing to attention. The **marabou stork** of Africa is a very similar bird with the same habits.

Shoebill or **whalehead.** This strange-looking bird lives in the great papyrus swamps of the White Nile in central Africa. Its beak is 8 inches long and only a little less wide. It feeds on fish, frogs, and young crocodiles. It flies with its head folded back, heron-like, but resembles the storks more closely in some of its other features.

Shoebill or whalehead (Balaeniceps rex)

Open-bill stork. There are two species of open-bill stork: the one found in Asia, which is illustrated on the left, and the all-black one found in Africa (*Anastomus lamelligerus*). When this stork's beak is closed it only meets at the tips, leaving a gap between the mandibles for the rest of their length. Open-bill storks live in swamps and feed mainly on large water snails.

Cattle egret. This small white-and-buff heron is found in all the warmer regions of the world. Flocks of them live in the company of herds of cattle and wild animals and often perch on their backs. They follow these beasts in order to catch the grasshoppers and other insects which are disturbed by their trampling feet.

Open-bill stork (Anastomus oscitans)

Marabou stork (Leptoptilos crumeniferus)

Common or **grey heron.** This is the only member of the Order found widely in the British Isles. It breeds in colonies, and its nest is made of sticks and grass. The female lays from three to five pale-green eggs. These birds fly to marshy places to hunt for food, and eat mainly frogs and eels. The **night heron** is only a rare visitor to Britain.

Common heron (Ardea cinerea)

Cattle egret (Bubulcus ibis)

Note – the illustrations are not all drawn to the same scale

Abdim's stork (Sphenorhynchus abdimi)

Abdim's stork is found in flocks in semi-desert country or plains over most of the Ethiopian region, breeding in the north and migrating south to Transvaal from October to March.

Ibis. The well-known sacred ibis of Africa (right) is black and white, while the glossy ibis has dark-brown feathers with a green and purple sheen.

Sacred ibis (Threskiornis aethiopicus)

Night heron (Nycticorax nycticorax)

HISTORY OF RUSSIA (part one)

EARLY Russian history was centred in the south. There, in the great Russian steppe – traditional home of the nomadic tribes – a continual stream of peoples arrived, passed on, or settled. Iranian tribes were followed by Slavs who fought against Goths, Huns, and Avars. By the end of the 9th century the Slavs were under the domination of a tribe of Turkic origin called the Petchenegs, who settled along the Black Sea shore.

To meet the Petcheneg menace a defender appeared from a most unexpected quarter. From Sweden came the Rus, a Varangian or Viking tribe who had long traded across the steppe with Constantinople. The Rus assumed the defence of the Slavonic tribes, and in doing so mastered them and became the founders of the Russian state.

The first Rus dynasty was reputedly founded in Novgorod by Rurik in 862, but much more important was the arrival of his brother Oleg in Kiev in 886. Oleg made Kiev a powerful principality which gradually came to control a large area. The power of the Grand Princes of Kiev was supplemented by that of the Church. In 988 the ruler of Kiev introduced Christianity into all his dominions, choosing the Orthodox variety which looked for leadership not to Rome but to Constantinople. Christianity proved a major unifying factor in the growth of the Russian state.

By the end of the 11th century Kiev enjoyed a supremacy acknowledged by many secondary principalities – among them Novgorod, Pereyaslavl, Vladimir, Halicz, and Suzdal. But Kiev was suffering increasingly from the raids of a formidable tribe who had replaced the Petchenegs in the south – the Cumans. While Kiev was being harassed by Cuman raids some of the more sheltered principalities were able to increase their power relative to that of Kiev. One of these was Suzdal in the north-east. On the death of Rostislav of Kiev in 1168 the prince of Suzdal, Andrew Bogolubsky, sacked Kiev. He assumed the title of Grand Prince but did not move his residence to Kiev. Thus the nucleus of the Russian state passed from south to central Russia.

The crown given by the Byzantine emperor to Vladimir, who brought Christianity to Russia in 988

Moscow at the end of the 15th century. Her great rulers Ivan III and IV extended Moscow's power in all directions

Mongol invasions

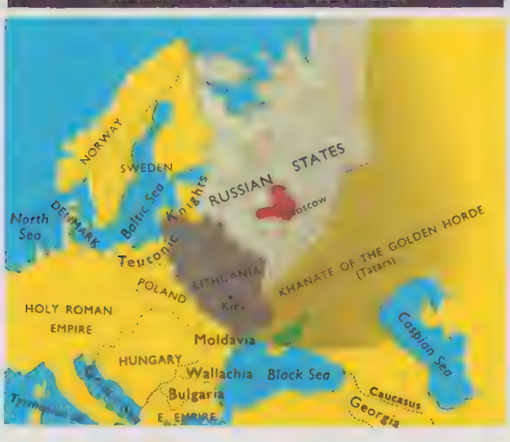
The princes of Suzdal were unable to keep the title of Grand Prince for long, and it soon passed to the rulers of Vladimir. But none of these rulers attained the undisputed supremacy that had been Kiev's. In fact, in the 12th and 13th centuries Russia became, in reality, a collection of small independent states. The most important of these were Suzdal, Smolensk, Novgorod, and Halicz (whose possession was disputed by Poland).

Despite their political disunity many of these principalities flourished. Fine buildings arose in trading centres like Novgorod, and churches and monasteries were built everywhere. In the less protected border regions of the south daring adventurers like Ivan Berladnik carved out short-lived principalities for themselves and fought against the Cumans.

But in the early 13th century came the Mongol invasions, which resulted in the subjection for centuries of huge areas of Russia to the Golden Horde. In 1240 Kiev was destroyed, and although not everywhere suffered so badly, the Mongols demanded crushing taxation from principalities like Suzdal and Smolensk.

While Mongol power expanded in the south, Russia was threatened from the north and west – principally by Sweden, Poland, and Lithuania,

RUSSIA IN THE 14TH CENTURY



RUSSIA IN THE LATE 16TH CENTURY

who made vast inroads into Russian territory. The Russian principality most favourably situated between these encroachments was Novgorod, which in the 13th and 14th centuries became the architectural and commercial capital of Russia. The great prince Alexander Nevski defeated the Swedes in 1240 and the Teutonic Knights two years later. From then on her access to the Baltic and relationship with the Hanse merchants (see page 2750) enabled her prosperity to develop unhindered.

The rise of Moscow

In the early 14th century the Mongol Khans made a most important decision. They entrusted the collection of their taxes to the senior among the Russian princes, the Grand Prince of Vladimir. This added greatly to the Grand Prince's prestige; but the holders of this title had long ceased to be the true rulers of Vladimir. Instead the strongest princes fought for the title or bribed the Khans for it. At first the Novgorod princes held it, but in the 14th century a new power suddenly appeared. The city of Moscow had been obtained by Daniel, younger son of Alexander Nevski. He added to it the principality of Pereyaslavl, and Daniel's son, Yuri, obtained the title Grand Prince in 1319. From then on the rulers of Moscow were virtually the continual holders of it.

Moscow's power was increased by her close association with the Church. As early as 1325 the Russian metropolitan established his see in Moscow. After the fall of Constantinople in 1453 the metropolitan assumed the headship of the Orthodox Church.

Moscow's power was consolidated in the 14th and early 15th centuries, but by the accession of Ivan III, the 'Great' (1462–1505), her territories stretched no farther than a few hundred miles in any direction. Yet by his death they had reached the Arctic and the Urals, the upper Don and Desna, and the middle course of the Dnieper.

Ivan III made a determined effort to conquer Russia's enemies. In 1478 he annexed Novgorod, claimed by Lithuania, and then conquered Vyazma, Chernigov, and Seversk from Lithuania. He also forced the Khan of Kazan to acknowledge him as his lord. A new code of laws was issued for all the lands brought under Moscow's rule, and in private correspondence Ivan used to call himself 'Tsar' – the Russian form of 'Caesar'. Ivan's work was continued by Vasily III (1505–1533), who captured Smolensk from Lithuania. He was followed by Ivan IV, the 'Terrible' (see page 608).

Ivan the Terrible (1533–1584)

Ivan IV (1533–1584) came to the throne at the age of three and during his childhood witnessed with horror the intrigues of the aristocratic *boyar* families as they struggled for power.

Ivan had himself proclaimed Tsar in 1547. He proved a truly enlightened ruler. He passed laws to help the poor against the rich and took steps to improve the education of the clergy. He also expanded Moscow's territory, completely subjecting the Khanates of Kazan and Astrakhan. Trade with England brought him increased wealth. Ivan made an alliance with Queen Elizabeth, asked for instructors in shipbuilding, and even made matrimonial advances to her. But in the second half of his reign Ivan changed completely. He became suspicious of the *boyars* and blamed them for the death of his wife in 1560. He set up a spy network to ferret out any evidence of treason. Wholesale arrests were made, and many innocent people were murdered or executed. Consumed with fear and suspicion, Ivan went mad. In 1581 he killed his heir, Ivan, with his own hands. He died three years later.

THE ISLES OF MAN AND OF WIGHT

Magnificent rolling moors in the centre of the Isle of Man

The geographical position of the two islands

OFF the coast of England lie two lovely islands – the Isle of Man and the Isle of Wight. Their positions, scenery, and history are very different, but in common they have a pleasant climate and a great attraction for tourists.

The Isle of Man

Many people think that the Isle of Man is just another region of Britain, but in fact it is a dependency of the British Crown. Acts of the Imperial Parliament only apply to the island if it is directly named in them, and it is administered in accordance with its own laws by the Court of Tynwald. This consists of the Legislative Council (the Governor, appointed by the Crown, and ten other members including the bishop, two deemsters [judges], and the attorney-general) and the House of Keys – 24 members elected by adult suffrage.

The Isle of Man has been inhabited since about 6000 B C, and by A D 450 it was populated by Gaelic-speaking people from whose language Manx, still spoken by a few people, is derived. In the 9th century Man was conquered and settled by Norsemen, and until the mid-13th century was nominally under the rule of the kings of Norway. King Alexander III of Scotland acquired it in 1266, and after a three-cornered struggle between the Manx lords, the kings of Scotland, and the kings of England it was granted by Henry IV of England to the Stanleys, who ruled it until 1736. They were known as the Lords of Man. The Dukes of Atholl succeeded them, but 30 years later they were induced to sell the sovereign rights over the island to the Crown, and Man thus became a Crown dependency.

The island, which lies in the Irish Sea 25 miles south-west of St Bees Head, is 33 miles long, 12 miles wide, and has an area of 220 square miles. Its coastline is rocky and indented, and off the south-west coast lies a little island called the Calf of Man. Geographically Man is allied to the highland zone of Britain, and it consists of a large, central mass of heather-covered mountains and moors rising to 2,034 feet at Snaefell. Rivers have cut deep glens through the mountains, and there are plains in the north and south. The capital is Douglas.

DID YOU KNOW?

1. *Legend says that an Irish giant gouged a lump out of Northern Ireland and threw it into the sea, where it became the Isle of Man. The hole became Lough Neagh.*
2. *King Charles I was imprisoned in Carisbrooke Castle, and his daughter Elizabeth later died there.*

The climate of the Isle of Man is very mild. Agriculture is the main occupation; oats, wheat, barley, turnips, and potatoes are grown. The local fishing industry is dying out, but a Scottish fleet lands herrings which are kippered and form the island's most valuable export. By far the most important 'industry' of the island is tourism; visitors are attracted by the mild climate and beautiful scenery, while the famous motor-cycle races held on the island draw huge crowds.

The Isle of Wight

The Isle of Wight is geologically part of Hampshire, from which it is separated by the Solent and Spithead. It has an area of 147 square miles, and measures 23 miles from east to west and about 13 miles from north to south at the widest point. The capital is Newport. Across the centre lies a chalk 'spine'; north of this is low, well-wooded country, while in the centre and south are bare chalk downs rising to 787 feet at St Boniface Downs. Along the south coast are magnificent jagged cliffs.

The Romans were attracted by the island's strategic position and by its pleasant climate. They built a strong fort where Carisbrooke Castle stands today, and also built luxurious villas. After they left the island was colonised by Jutes and then by Saxons, and during the 11th century the Danes seized the island and used it as their base in harrying the mainland.

William the Conqueror bestowed the lordship of the Isle of Wight on William FitzOsborne, giving him absolute authority over it, but FitzOsborne's son rebelled against the King and the island reverted to the Crown. Henry I granted it to Richard de Redvers, whose descendants held it until it was sold back to Edward I in 1293. The end of the 13th century also saw the first of many threatened French invasions. Several times the French landed and fierce skirmishes took place; their last landing was in 1545, but the threat of invasion remained for several centuries.

The Isle of Wight became fashionable as a holiday resort during the 19th century. Its development was greatly influenced by Queen Victoria, who bought the Osborne estate in 1844. The Prince Consort himself designed the new Osborne House which became a great favourite with the Queen. The Royal Household moved there regularly from mid-July to mid-August, and from mid-December until mid-February. Lord Tennyson, who lived nearby, was a frequent visitor. Queen Victoria died at Osborne, and her body was taken across to Portsmouth on her favourite paddle-wheel yacht, through an avenue of warships from many different countries.

Today the island relies mainly on tourists for its income; they are attracted by the excellent sailing, magnificent scenery, and good bathing. There is little industry, but still a great deal of agriculture.

Cliffs and beaches on the Isle of Wight

HEART DISEASE

YOU can rest your legs by sitting down; you can rest your brain by going to sleep; but you can never rest your heart. Day in, day out, year after year throughout your entire lifetime, this rugged organ within your chest pulsates unceasingly. When it finally stops your lifetime is over.

Because of the indispensable part which it plays in the existence of every human being, the heart has been endowed with supreme importance in the eyes of both the patient and the physician. Indeed, among the latter there are many who, as *cardiologists*, devote the whole of their professional lives solely to the diagnosis and treatment of heart disease.

The life of a cardiologist is a busy one, and it is likely to remain so. As the pace of life becomes faster and modern living more indulgent the incidence of heart disease increases. But heart disease is not necessarily a death-knell, and thousands of people who regularly attend a cardiologist's consulting rooms will gladly testify to this.

A LITTLE ANATOMY

The heart consists of a large muscular mass called the *myocardium*. Its exterior surface is covered with a membrane known as the *pericardium*, while the interior surface is lined with the *endocardium*, a delicate layer which is folded in places to form the *valves* of the heart. The surface of the heart is crossed by the *left* and *right coronary arteries*, which carry blood from the aorta to the muscle of the heart.

A diagram showing the parts of the heart affected by the common forms of heart disease

There are many different forms of heart disease and they can affect almost every part of the organ. Rheumatic fever, for example, causes inflammation of the myocardium, the pericardium, and the heart valves, while arterial disease involves the coronary arteries and reduces the flow of blood to the heart muscle.

Palpitations

Under normal circumstances people do not notice the beating of their hearts. It is only when they indulge in some unaccustomed form of exertion that they become aware of its repeated pounding within their chests. This unusually forceful beating of the heart has no ominous significance in a healthy person; indeed, it has often been suggested that regular bouts of hard work are actually good for the heart.

But sometimes people become aware of the beating of their hearts when they are not exerting themselves. Consciousness of the heart's action under these circumstances is known as *palpitations*, and although it may cause some alarm, particularly on the first occasion that it happens, it is seldom symptomatic of serious heart disease.

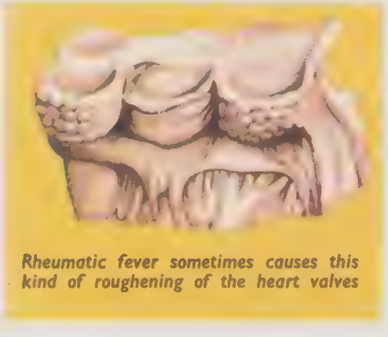
Slender, rather nervous people seem to be much more prone to palpitations than broader, more unemotional types. A bout of this unpleasant complaint may be brought on by many causes. A sudden shock, an over-large meal, or a meal consisting of very spicy food may bring it on, and alcohol, tobacco, coffee, and tea have also been blamed for causing palpitations on many occasions.

A man who is thought to be suffering from heart disease having the action of his heart examined by means of an electrocardiograph

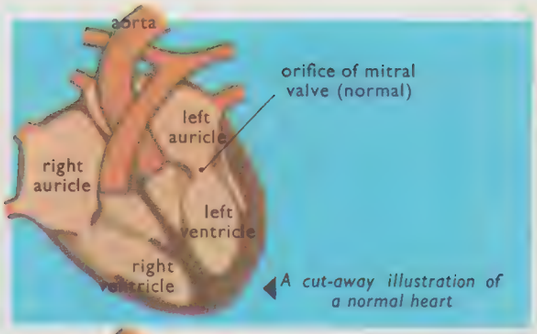
Rheumatic fever

Rheumatic fever is a serious disease of children and young adults. The most obvious signs of the disease are a high temperature and swollen joints, but rheumatic fever can also have more widespread effects. It frequently spreads to the heart, causing inflammation of the muscle and the endocardium.

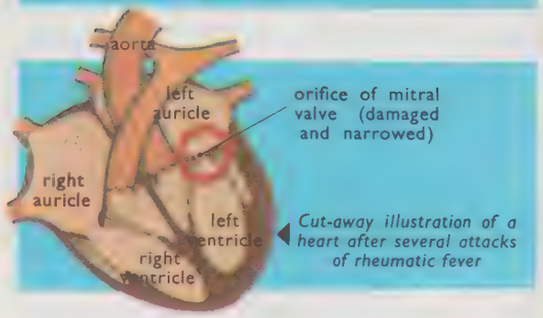
With careful nursing and modern treat-



Rheumatic fever sometimes causes this kind of roughening of the heart valves



A cut-away illustration of a normal heart



Cut-away illustration of a heart after several attacks of rheumatic fever

ment most victims of rheumatic fever recover from their illness after spending several months in bed. When they are completely well again they are able to resume most of their normal activities, although they are usually not allowed to take part in occupations or games which involve strenuous exertion.

There are two reasons for this embargo on violent exercise. Firstly, the inflammation of the heart muscle which occurs during an attack of rheumatic fever takes a very long time to heal completely, and it is inadvisable to overtax a heart in this condition. Secondly, rheumatic fever may affect the heart valves and reduce their efficiency.

The valves most often affected by rheumatic fever are the *mitral* and the *aortic*, both of which are on the left side of the heart. As a result, the pumping efficiency of the left side of the heart is impaired. Although the heart muscle compensates for the inadequacies of the valves, it can only do so at the expense of the heart's reserve capacity. In consequence the maximum effort of which the heart is capable is reduced below the level of a normal person.

Bacterial endocarditis

Bacterial endocarditis, as its name implies, is a bacterial infection of the endocardium. It is a disease which usually occurs in a heart which has previously been affected by an attack of rheumatic fever, and the parts of the heart which are most often attacked are the mitral and aortic valves.

Bacterial endocarditis is a particularly serious disease because it causes progressive damage to the valves, and, in consequence, the heart's pumping ability becomes increasingly impaired. If untreated it invariably proves fatal.

Since the discovery of penicillin the prospects of curing bacterial endocarditis have greatly improved. By means of antibiotics the invading microbes can be killed, the progress of the illness halted, and the patient's life saved.

BLUE BABIES

The development of the heart during embryonic life is an exceedingly complicated process, and it is therefore not surprising that it occasionally goes awry. The consequence of such maldevelopment is a heart with a *congenital deformity* which frequently results in the infant's death very soon after birth. Occasionally, however, the deformity is not fatal and the infant lives, often as a *blue baby*.

HOW IT HAPPENS. Many of the infants who survive despite this disability have a hole in the muscular wall which separates the two sides of their hearts.

Some of the venous blood which normally returns along the great veins to the right side of the heart escapes through this hole into the left side of the heart and is pumped into the aorta

PERICARDITIS

The pericardium is the double-layered membrane which surrounds the heart (see page 812). The *visceral layer* of this membrane is attached to the heart muscle and the *parietal layer* to the surrounding tissues. Between the two there is a minute amount of lubricating fluid, which enables the layers to slide on one another during each heart-beat. Inflammation, *pericarditis*, affects both layers.

HOW IT HAPPENS. The usual cause of pericarditis in children is rheumatic fever. Both layers of the double-layered membrane become reddened, and there may also be an outpouring of fluid which fills up some of the space between the layers. This fluid is called a *pericardial effusion*.

Other causes of pericarditis are pneumonia and pulmonary tuberculosis. In both of these illnesses the pericardium becomes infected by microbes which spread from the lungs.

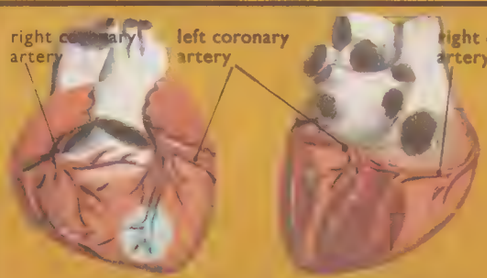
ANGINA PECTORIS

Angina pectoris is the name given to an intense feeling of suffocation in the chest. It is always accompanied by such extreme pain that the victim has to stay perfectly still until it subsides. Angina is not itself a disease; it is merely a symptom of a disease.

HOW IT HAPPENS. Because the muscle of the heart has to work so hard and so continuously, it is well supplied with blood by the two coronary arteries. In many people, as they grow older, the walls of the coronary arteries become damaged by the deposition of porridge-like material just beneath the arteries' inner linings (see **Atherosclerosis,** page 1425). As a result of this the cavities of the arteries are narrowed and the amount of blood which can pass along them is reduced. At rest or during gentle movement this reduction in blood flow is not noticeable, but immediately vigorous work is undertaken and the heart begins to work harder the blood supply to the heart muscle becomes inadequate. It is this inadequacy of the blood supply to the heart which causes the considerable pain of angina pectoris.

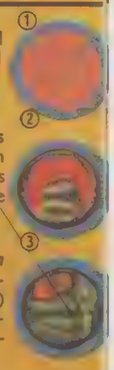
CORONARY THROMBOSIS

This is a disease of modern, bustling civilisations, and it is particularly common among men who have occupations which do not allow them sufficient free time for rest and relaxation. It also seems to be associated with party-going, inadequate exercise, cigarette smoking, and the consumption of large quantities of alcohol.



The arrow indicates a thrombus stopping the blood flow to the area marked in white

View of the heart showing how the coronary arteries serve the posterior wall

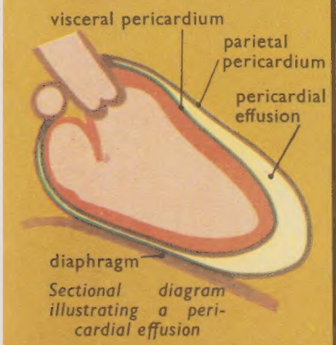


Sections of a coronary artery: normal ① thrombus forming ② thrombosed ③

HOW IT HAPPENS. The little *plaques* which form on the inner walls of the coronary arteries in atherosclerosis sometimes break down and ulcerate through the inner linings of the arteries. When this happens a small blood clot forms on top of the ulcer and may completely fill the cavity of the coronary artery.

without being re-oxygenated in the lungs. It is this blue-coloured venous blood circulating in the infant's face and lips which gives rise to the name 'blue baby'.

THE TREATMENT. For many years now it has been possible to operate on children suffering from some of the less serious congenital deformities of the heart. Such operations improve the working of the heart and, consequently, allow the child to lead a more normal life. Recent advances in anaesthesia and surgical technique have enabled surgeons to tackle some of the more complex deformities with considerable success.



Sectional diagram illustrating a pericardial effusion

THE TREATMENT. Complete and prolonged rest in bed is the treatment for pericarditis. In this way the load on the heart is reduced to a minimum, the beats lessen in size and in frequency, and the inflamed condition of the pericardial membranes is given an opportunity to subside.

In cases of pericarditis where there is a large pericardial effusion, it is sometimes necessary to remove the fluid by surgery.

THE TREATMENT. In the treatment, or rather the prevention, of attacks of angina pectoris all forms of exercise are prohibited which require a greater supply of blood to the heart than the damaged coronary arteries can provide.

This means that the patient must lead a restricted life – but not necessarily a useless one. Nor does it mean that he can take no exercise at all. Many people with angina play games such as bowls and croquet, and they can even undertake a gentle game of golf. To prevent the condition of the coronary arteries from becoming worse and aggravating the anginal attacks it is usual for alterations to be made in the patient's diet. Animal fats such as butter, lard, bacon, and dripping are excluded since it is thought that they contribute to atherosclerosis. Absence of worry and regular sleep are important factors in the treatment.

Should attacks of anginal pain occur in spite of every precaution, they can often be lessened by means of drugs which dilate the coronary arteries.

This blood clot is called a *thrombus*, hence the name *coronary thrombosis*. The effect of the thrombus in a coronary artery is to cut off the blood supply to a part of the heart muscle, and, consequently, that part of the heart muscle dies.

Many coronary thromboses occur in the branches of the coronary arteries and thus the amount of cardiac muscle which is affected is quite small. The most commonly affected areas are the front wall of the left ventricle near the apex of the heart and the posterior wall of the same chamber near the base of the heart.

In the course of time a mild inflammatory reaction around the area of dead cardiac muscle removes the useless muscle fibres and they are replaced by fibrous tissue, which forms a scar on the wall of the heart.

THE TREATMENT

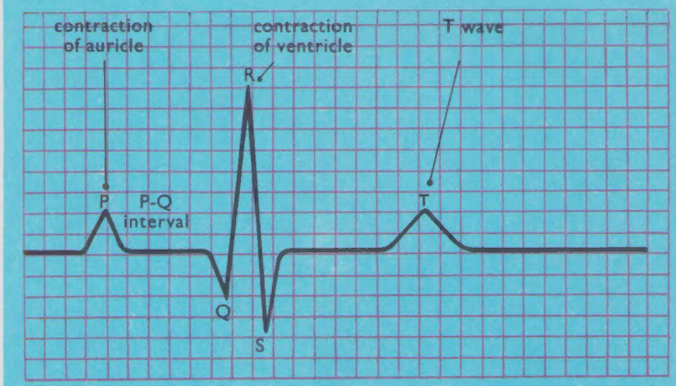
After spending several weeks in bed to permit the scar tissue to repair the heart, the patient is allowed to begin his convalescence.

Afterwards he must follow a set of rules similar to those described for the patient with angina pectoris.

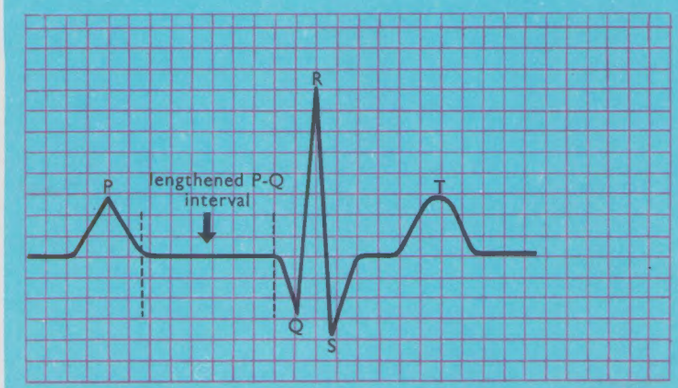
THE ELECTROCARDIOGRAPH

In diagnosing heart disease the physician often uses an apparatus called an *electrocardiograph* which records the electrical currents produced by the heart as it beats. Each form of heart disease causes characteristic deviations from the record provided by a normal heart, and so an electrocardiograph can indicate the exact nature of the cardiac disability.

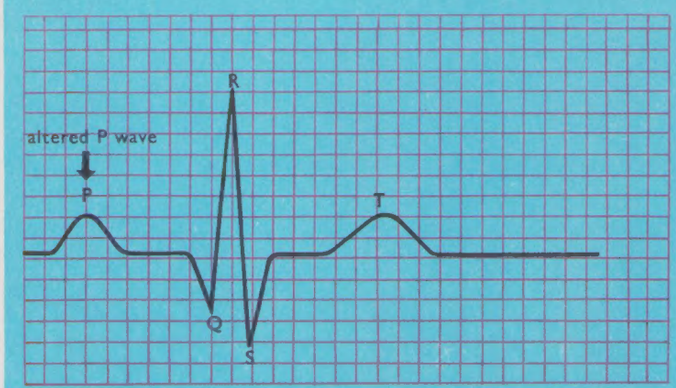
The electrocardiograph provides a permanent record traced on a strip of graph paper. This is known as an *electrocardiogram*, and it can be removed from the apparatus and studied at leisure by the cardiologist.



An illustration of the electrocardiogram provided by a normal heart



An illustration of an electrocardiogram provided by the heart of a patient suffering from rheumatic fever. The distance between the P and the Q waves is increased owing to slower conduction of the cardiac impulse through the damaged heart tissue



The damage to the heart valves which sometimes follows an attack of rheumatic fever may lead to the damming back of the blood in the left auricle. As a result the auricle becomes distended and the pattern of its contraction altered, a fact which is faithfully recorded by the altered trace on the electrocardiogram

ADDISON AND STEELE

Joseph Addison – the sustained genius

IMAGINE that it is the year 1711. Queen Anne is on the throne, and in the coffee-houses of London, where men gather to discuss the politics, literature, and scandals of the day, the talk is of the bitter struggle between the two great political parties – the Whigs and the Tories; of Daniel Defoe's periodical *The Review*, which provides a regular commentary on the customs and politics of the age; of Alexander Pope, the young poet and satirist, whose first important work, *An Essay on Criticism*, has just appeared; and above all of one Sir Roger de Coverley, a simple, likeable country gentleman whose eccentricities and adventures are described regularly in a new periodical, *The Spectator*.

Defoe and Pope were real men, but Sir Roger was the invention of Joseph Addison and Richard Steele, who together wrote *The Spectator*. Like some of the characters of Shakespeare and Dickens, Sir Roger has become an integral part of our literary heritage, for he represents an enduring aspect of the 'British character'.

Origins of a great partnership

Addison and Steele first met at Charterhouse School. They were very different in character, and this was perhaps one reason for the success of their later partnership. Joseph Addison (1672–1719) was a pale, sickly boy who grew up to be calm, well-balanced, and noted for his brilliance in conversation. Richard Steele (1672–1729), on the other hand, was stout and excitable and always short of money. He ran away from Oxford University to join the army, without the consent of his guardian; this, he claimed, cost him the inheritance of an excellent estate in Ireland. About this time Steele started writing plays. His first, a comedy called *The Funeral*, was a success, and in the next few years he wrote several more popular comedies as well as becoming deeply involved in political work for the Whigs. But it was not until 1709, when he launched his first periodical magazine *The Tatler*, that Steele found the outlet best suited to his talents.

Meanwhile Addison, too, had made his mark on the world of letters. In 1704 he wrote a poem called *The Campaign*, celebrating Marlborough's victory at Blenheim. This work won him immediate acclaim in London. But for a time he put aside his literary ambitions to work for the Whig government as M P for Malmesbury (1708) and then as secretary to the Lord Lieutenant of Ireland. While in Dublin he read the first issues of *The Tatler* and realised that the anonymous author was his old friend Steele. Addison wrote to Steele with suggestions for *The Tatler* and soon began to contribute himself. The famous partnership had begun.

The Tatler appeared three times a week, and each issue was a medley of essays and notes on manners, politics, and literature. Steele stated that his purpose was 'to expose cunning and affectation, and to simplify dress, discourse, and behaviour'. He and Addison were writing for the intelligent reader who was in sympathy neither with the old Puritan fanaticism nor with the licence and excess of the Restoration. In form *The Tatler* was like Defoe's *Review*, the first successful English periodical, but Steele improved on his predecessor by using several different contributors, including Swift, and by widening the range of his subject-matter to include such things as dramatic criticism. But as a result of Steele's rash political attacks on the Tories *The Tatler* had to close down on 2nd January 1711. Two months later Addison and Steele embarked on their greatest joint venture, *The Spectator*.

The Spectator

This interesting new periodical differed from *The Tatler* in several ways: it appeared daily; politics was dropped as a subject; and each issue consisted of one essay only, which enabled the authors to develop their ideas and characterisation more fully. Addison, who became the dominant partner, wrote of his aims in the tenth issue: 'I shall endeavour to enliven Morality with Wit, and to temper Wit with Morality . . . till I have recovered [my readers] out of that desperate State of Vice and Folly into which the Age is fallen; and I shall be ambitious to have it said of me that I have brought Philosophy out of Closets and Libraries, Schools and Colleges, to dwell in Clubs and Assemblies, at Tea-tables, and in Coffee-houses.'

This was the age of the coffee-house and the club, so Addison and Steele invented the Spectator Club as a natural background to their observations of society. Day by day they described the activities and opinions of its members. There was the Spectator himself – the fictitious writer of the periodical – a serious but humorous gentleman who frequented the coffee-houses. There was Will Honeycomb, the dandy and man of fashion; Captain Sentry, the retired soldier; Sir Andrew Freeport, one of the first representatives in English literature of the solid merchant class; and, of course, Sir Roger de Coverley, the country gentleman whose old-fashioned reactions to the bustling new world of London were an unending source of fun and ironic comment. Steele invented Sir Roger, but it was Addison who developed him as a character, and this was the general pattern with all the characters created in *The Spectator*.

Later years

The Spectator included Addison's and Steele's finest work, and after taxation problems forced it to close down on 6th December 1712 neither of them produced such original work again. In 1713 Steele started a new periodical, *The Guardian*, to which Addison contributed; but the inspiration was gone. Steele's later writings were mainly political and he received a knighthood from George I for supporting the Protestant succession. Addison's tragedy, *Cato*, staged in 1713, was a poor, wooden piece of work which won a brief success only because the Whigs saw in it the expression of their political ideals. In 1719 he quarrelled with Steele over politics, and in June of that year, before a reconciliation could take place, he died. Steele lived on for ten more years, retiring to his wife's Welsh farm in 1722.

Like Gilbert and Sullivan, Addison and Steele could not work well apart. Together they created something new in English literature – the balanced, urbane essay on manners, morals, literature, and fashion. Addison's contribution was the greater because of the superiority of his clear, witty prose and his ability to bring to life characters like Sir Roger. But it was Steele who provided most of the partnership's original ideas. *The Spectator* had a circulation of about 10,000 – an enormous figure at that time. This extraordinary success was mainly due to the fact that Addison and Steele, instead of confining themselves to politics, reflected all the interests of a large public in the new, civilised life of 18th-century London.

Richard Steele – the brilliant, erratic originator

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the current fashion of the day, while the troops, apart from their armour, wore anything they chose. Captains in charge of mercenary soldiers were expected to clothe them, and some gave them distinctive outfits; others merely gave them all a badge or emblem to wear on their own clothes, such as the white cross of the Swiss and French and the red cross of the German and English troops. But this variety of colours and styles sometimes led to tragic mistakes on the battlefield, and so countries in alliance tended to adopt a common colour for their armies' uniforms.

At the time of the Thirty Years War (1618–1648) the first standard uniform was worn by the English footsoldiers. It consisted of a buff coat, baggy trousers, a cuirass or breast-plate, and a broad-brimmed hat pinned up on one side. The horsemen continued to wear full armour until it was finally discarded in 1648; the cuirass, however, is still worn today in full dress by the Household Cavalry. The most colourful and decorative uniforms were worn by the military drummers and trumpeters, who were festooned with gold and silver lace, the drum-major being the most gorgeously dressed of all.

It was Oliver Cromwell who realised, as early as 1645, that a practical uniform was a necessity for fighting troops. He introduced the famous red coat for all except the Artillery, the Horse Guards ('the Blues'), and the Scots who kept their own traditional dress. In an age when the battlefield was often obscured by the clouds of smoke emitted by primitive guns quick recognition of one's own formations was vital, and brilliantly coloured uniforms provided the answer. The different regiments within the army were now distinguished by the colour of their lapels, collars, cuffs, and waistcoats, and other details introduced by individual officers or regiments.

By the end of the 17th century all large states were keeping standing armies, and the soldier became a respectable citizen serving his country rather than a disreputable hireling. Uniforms were issued to all soldiers, the actual colour and style sometimes being dependent on the materials available in enemy territory or times of shortage; active service also brought about modifications and changes in details such as the shape of the hat, type of footwear, or the width of the trousers. A convention of international law also came into force, stipulating that all those engaged in war (that is, the armed forces) should wear special clothing to distinguish them from civilians.

The 'Mounties' in their world-famous musical ride

By the end of the 18th century the 'king's uniform' was something to be worn with pride, a symbol of the strength and honour of the British Army. Regulations governing its wearing were introduced. Later civilian organisations, such as the police, customs, and postal services, also adopted uniforms along military lines.

The strictly practical uniform of an Australian life-saving club

Field service dress

As late as 1812 full dress was worn into battle because formation tactics were still used; the 'thin red line' even featured in 1854 in the Crimean War. But coloured uniforms were often rendered confusingly unrecognisable by mud or rain, or they proved too heavy in hot weather. Improved artillery techniques also demanded less conspicuous targets, and so field service dress for active service appeared in unobtrusive khaki, iron-grey, or horizon-blue. Full or ceremonial dress was now inspired by military traditions rather than current fashions, each regiment proudly retaining in its badges symbols of its greatest achievements.

The Royal Navy

Until the reign of Charles II the Navy consisted of a few royal ships reinforced by armed merchantmen. The crews were half sailors and half soldiers, each wearing

A captain and stewardess of B O A C

No. 186 Volume 16

Knowledge

Printed in Great Britain by Purnell & Sons Limited
Paulton, Nr. Bristol

Published by arrangement with
Fratelli Fabbri Editori
Milan

© 1960 Fratelli Fabbri Editori Milan

© 1964 Purnell & Sons Ltd.

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the most practical clothes for his particular job. The Navy Board made available certain items of clothing for the sailors to buy, but they were paid poorly and at irregular intervals, and usually made do with what they could find ashore or make for themselves. When Charles II enlarged the Navy and improved the pay, he also made more clothes available for ships' crews; he introduced the famous blue jacket, worn with white trousers and a tarpaulin or straw hat. Officers wore the fashions of the day until 1748, when officers' uniforms and badges of rank were introduced. The crew were not given an official uniform until 1857. As recently as 1956 modifications were made in this (see **The Navy**: part four).

In Commonwealth countries links with the British Army are evident in the uniforms of the armed forces, and even of the police. Particularly famous are the Royal Canadian Mounted Police, originally the North-West Mounted Police, who were organised in 1873. Their horses have now been replaced by light aircraft, motor boats, and fast cars, but their 200 sleigh dogs are reminders of the difficult terrain they may have to cover. The lance, carried as a symbol of authority when Indians still roamed the plains of north-west America, is now only seen during the Mounties' colourful displays, such as the musical ride shown on the previous page.

Civilian uniforms

A variety of contrasting civilian uniforms are illustrated on these pages. Perhaps the most familiar is that of the British policeman, whose dress, except for the helmet, has not changed much since the formation of the first police force by Sir Robert Peel (see **Police**) in 1829. The police uniform was carefully designed to resemble civilian and not military dress to remove any fear of the emergence of a military state. Other uniformed government servants include the postmen, firemen, and customs men, whose clothes are more practical than colourful. Since British railways were nationalised in 1947 the uniform for railway workers on all lines has been standardised; the latest innovations (right) were designed in 1963. The familiar dark navy has gone, replaced by charcoal grey for station staff and a lighter shade of blue for engine drivers and firemen.

Among the most controversial uniforms are those issued by schools, and many people who have had to spend their schooldays in shapeless garments in unbecoming colours are not in favour of school uniforms. But they are intended to be practical in use and hard wearing; they enable the pupils of a school to be identified easily; and many of them are based on tradition.

Wearing a uniform to which you are not entitled is regarded as quite a serious offence, even if you are just wearing it for fun. Laws have been passed in England penalising unauthorised people wearing anything resembling the uniforms of the services, the police, and the Merchant Navy. The uniforms of associations incorporated by royal charter are also protected.

King's College, Canterbury – tidy suits and straw hats

British Railways' new uniforms: a driver (left) and stationmaster (right)

The casual sweater and shorts of a pupil at Gordonstoun

Queen Alexandra's Royal Army Nursing Corps' uniform with its distinctive red cape